

rior vertebræ, and pectoral arch of this fish is given for comparison (Plate XXII. fig. 4).

Notwithstanding the general resemblance, it will be seen that there are several important differences of detail. In the recent fish the sutures are persistent, the head is broader and flatter, and the orbit and frontal fontanelle much smaller. The posttemporal and pectoral arch are also relatively smaller, and the latter tapers below; while the infraclavicle appears to be much less developed.

König's name of *Bucklandium diluvii* may thus be retained for the fossil now described, and, upon present evidence, this Eocene fish may be most closely associated with an African type. It ought to be remembered, however, that most of the living allies of *Auchenoglanis* are denizens of South America; and in this connection it is interesting to note a fact kindly communicated by Mr. Etheridge, that the molluscan fauna of the London Clay has about as many living representatives upon the south-east coast of North America as upon the western coast of Africa.

#### EXPLANATION OF PLATE XXII.

- Fig. 1. *Bucklandium diluvii*; side view of an imperfect skull and pectoral arch, from the London Clay of the Isle of Sheppey. *b*, displaced base of the cranium; *cl.*, clavicle; *fo.*, frontal fontanelle; *fr.*, frontal; *i.cl.*, ascending plate of infraclavicle; *orb.*, orbit; *pt.*, posttemporal; *so.*, supraoccipital.
2. Ditto; upper view of the same specimen. Lettering as above.
3. Ditto; lower view of part of the base of the same specimen. *ar.*, articulation of basioccipital with vertebral column; *ps.*, parasphenoid, partly overlapping basioccipital; *v.*, anchylosed anterior vertebræ.
4. *Auchenoglanis biscutatus*; side view of head, anterior vertebræ, and pectoral arch, much reduced in size.

Figs. 1-3 are all of the natural size.

5. On new Species of the Coleopterous Family *Carabidæ*, collected by Mr. J. H. Leech in Kashmir and Baltistan. By H. W. BATES, F.R.S.

[Received March 18, 1889.]

#### CARABUS (IMAÏBIUS) BARYSOMUS.

*Robustus, elytris convexis usque post medium dilatatis; niger, nitidus, capite thoraceque subtilissime coriaceis fere lævibus, hoc transverso, cordato-quadrato, antice lato convexo, basi depresso, mox ab angulis anticis (rotundatis) valde rotundato, lateribus paullo post medium sat profunde sinuatis, deinde ad angulos posticos parallelis (angulis rectis apice obtusis); elytris grossissime subseriatim fossulatis, fossulis in fundo umbilicatis, hic illic confluentibus; corpore subtus impunctato.*

Long. 35-38 millim. ♂ ♀.

Goorais Valley.

With the form of head and mouth-structure of a typical *Carabus*, this species differs from all the subgenera and groups of that genus in the simple anterior tarsi of the male. The form of head and thorax and the vertically projecting tooth of the mentum are nearly the same as in *C. kashmirensis* (Koll.) and *C. boysi* (Tatum). The elevated interstitial parts of the elytra bear here and there traces of punctured striæ. The new subgenus necessary for its reception may be thus characterized:—

#### IMAÏBIUS.

*Tarsi antici utroque sexu simplices. Caput post oculos haud incrassatum. Labrum medio valde depresso-emarginatum. Mentum dente magno valde elevato et compresso, apice truncato. Palpi labiales articulo penultimo 5-setoso; labiales et maxillares articulo apicali in ♂ late triangulari, in ♀ mediocriter dilatato.*

#### CARABUS DARDIELLUS.

*Quoad formam C. obsoleto similis, sed paullo gracilior; elongatus, nigro-fuscus, ænescens, parum nitidus; capite (normali oculisque prominentibus) thoraceque vermiculato-strigosis, hoc transverso cordato-quadrato, mox ab angulis anticis rotundato-dilatato paullo post medium vix sinuatim angustato, angulis posticis paullo productis (apice obtusis) declinatis, margine laterali paullo reflexo, antico medio sinuato; elytris elongato-ovatis, postice convexis, striato-punctatis, interstitiis angustis, aut convexis aut planis, utrinque fossulis rotundatis (fundo unigranulatis), triplici serie spatiiisque inter fossulas oblongo-tuberculatis, limbo laterali et apicali confertim aspere granulato. Palpi labiales articulo penultimo 5-setoso. Antennæ articulo 4° apice piloso. Mentum dente magno valde elevato et compresso, apice truncato. Labrum profunde sinuatum. ♂. Tarsi antice articulis 4 dilatatis, plantis spongiosis, 1°-3<sup>m</sup> latis et arcte conjunctis, 4° parvo.*

Long. 22-24 millim.

Goorais Valley. Many examples.

Resembles *C. boysi* (Tatum) in the sculpture of the elytra; the latter, however, is a much larger species, with less ovate elytra, and differs conspicuously in the subcordate form of the thorax, the sides of which are deeply sinuated near the projecting and acute hind angles. *C. wallichii* (Hope) has a very similarly-formed thorax to *C. boysi*, but the sculpture of the elytra differs from that of both the others in the spaces between the foveæ in the "chain-striæ" being linear and as narrow as the other interstices. I have examined the type specimens of both in the British Museum collection.

The following is a tolerably well-marked variety, of which there are several specimens.

#### Var. GRANULISPARSUS.

*A typo differt solum capite thoraceque dense nec profunde*

*punctulatis, hoc postice haud sinuatim, subrecte, angustato, elytrisque undique aspere granulatis, interstitiis striarum tuberculisque catenarum crenatis subinterruptis.*

#### NEBRIA HIMALAYICA.

*Quoad formam N. picicorni similis, sed angustior, magis elongata, et valde differt colore omnino nigro nitido, tarsis solum picescentibus. Elongata, elytris parallelis (humeris quadratis), capite post oculos (valde convexos) haud angustato supra transversim depresso lævi; thorace relative parvo, transverso, cordato, mox ab angulis (haud productis) anticis rotundato-dilatato deinde valde angustato, angulis posticis rectis nec exstantibus; sulco anteriore lato profundissimo vage punctato; elytris relative elongatis acute punctulato-striatis, stria 3<sup>a</sup> 6-7-punctata, interstitiis parum convexis; subtus lævi, sternis lateribus haud profunde punctatis.*

Long. 12-15 millim. ♂ ♀.

Skardo; Goorais Valley.

#### BEMBIDIUM (PERYPHIUS) BRACCVLATUM.

*B. cæruleo (Dej.) quoad formam simillimum, paullo minor, thorace basi magis constrictum, antennis dimidio basali, tibiis tarsisque flavo-testaceis, femoribus nigro-fuscis apice flavo-testaceis. Subplanatum, viridi-cyaneum, sulcis frontalibus latis irregulariter impressis; thorace rotundato-cordato prope basin valde angustato, foveis basalibus angustis obliquis profundis carinulaque juxta angulos acutos posticos, basi parce punctato; elytris oblongo-ovatis, versus basin haud angustatis humeris rotundatis, punctato-striatis (stria septima integra sed parum impressa, tertia bifoveata), interstitiis planis, versus humeros macula vaga translucente rufa et margine apicali angustissimo flavo.*

Long. 5-5½ millim.

Goorais Valley.

#### BEMBIDIUM (PERYPHUS) DARDUM.

*Elongatum, mediocriter convexum, thorace relative parvo, rotundato prope basin subtiliter contracto, angulis posticis rectis absque carinula, foveaque lata strigulosa; læte cyaneum, palpis, antennis pedibusque rufo-testaceis; foveis frontalibus postice abbreviatis; elytris elongatis, apice utrinque macula lata indistincta rufescente, punctulato-striatis, stria 7<sup>a</sup> distincta sed vix impressa.*

Long. 7 millim.

Skardo.

#### CHLÆNIUS ANCHOMENOIDES.

*C. cæruleo (Stev.) proxime affinis; major, nigro-cæneus vix cærulescens, partibus oris (cum labro) et antennis fulvo-testaceis, his articulo tertio toto secundoque macula nigris; capite et thorace lævibus politis, hoc relative angusto subcordato postice longe sinuatim angustato, angulis posticis exstantibus acutis, basi*

*ruguloso et sparsim punctulato, fovea utrinque oblonga profunda; elytris elongatis et latis profunde punctato-striatis, interstitiis 1<sup>o</sup>-6<sup>m</sup> late impunctatis politis sed prope strias et apicem interstitiisque 7<sup>o</sup>-9<sup>m</sup> toto pluripunctatis et fulvo-pilosis; subtus (ventris segmento apicali lato excepto) lævi polito, lateribus dense punctulatis et pubescentibus. Pedes sat graciles; tarsis subtus dense rigide pilosis, articulo quarto acute emarginato.*

Long. 17-18 millim. ♂ ♀.

Goorais Valley.

In size and form this species resembles the *C. noguchii* of Japan. The allied species, *C. cæruleus* (Stev.), a well-known Caucasian Carabid, was also taken in considerable numbers by Mr. Leech.

#### HARPALUS KASHMIRENSIS.

*H. rufitarsi* (Rumbur) similis, at differt thorace postice adhuc magis angustato vix sinuato. Convexus, niger, politus, elytris in ♀ subopacis; palpis, antennis et tarsis rufis; capite quam in *H. rufitarsi* puullo latiore, lævi; thorace mox ab angulis anticis sat late rotundato, postice longe recte et valde angustato, sed angulis posticis distinctis, obtusis, fovea basali angusta parce punctata excepta, lævi; elytris acute et sat profunde æqualiter striatis, interstitiis supra planis, tertio impunctato, cæteris omnino lævibus, apice utroque sexu minus oblique sinuatis.

Long. 10 millim.

Goorais Valley.

#### HARPALUS IDIOTUS.

*H. tenebroso* (Dej.) haud dissimilis, relative brevior, thorace postice paullo magis angustato, elytris profundiùs striatis. Niger, nitidus (elytris in ♀ alutaceo-opacis), palpis, antennis tarsisque rufis; capite purvo post oculos angustato, lævi; thorace ante medium leviter rotundato-dilatato, postice recte angustato, angulis posticis obtusis, basi utrinque parce grosse punctato, fovea lata et vage impressa; elytris quam thorax duplo tantum longioribus, oblique sat fortiter sinuatis, acute et profunde striatis, interstitiis, præcipue versus apicem, convexis, tertio unipunctato.

Long. 10 millim.

Goorais Valley; Skardo.

In colour and sculpture this species greatly resembles *H. kashmirensis*, but the head is much smaller, the neck narrower, and the thorax is less narrowed behind, with angles more nearly approaching a right angle and the base punctured.

#### MOLOPS PILIFERUS.

*Molops piliferus*, Bates, Proc. Zool. Soc. 1878, p. 718.

The typical form of this species, as described from a large series of examples taken by Stoliczka at Murree, is remarkable for the uninterrupted series (from base to apex) of large punctures, bearing

each a long, erect hair, in the seventh elytral stria, and for the strongly cordate-quadrate thorax and flat elytral interstices. Numerous individuals perfectly agreeing with the Murree form were taken by Mr. Leech in the Goorais Valley, but mingled with examples in which the piliferous punctures are much less numerous, the elytral interstices convex, and the thorax more quadrate than cordate. The extreme form departs so much from the type that had there not been a graduated series of intermediate examples, it might be considered a distinct species.

*Var. M. depilatus. Plerumque minor, nigerrimus, nitidus; thorace antice mediocriter rotundato, postice minus sinuatim angustato, angulis posticis paullo exstantibus, interdum rectis; elytris profunde striatis, interstitiis convexis, 8vo parum angustato striaque 7ma postice solum pauciter pilifero-punctata.*

Long. 11-13 millim.

Goorais Valley; Skardo.

#### PRISTONYCHUS KASHMIRENSIS.

*C. cimmerio (Dej.) quoad formam subsimilis. Apterus, niger, (♂ ♀) sericeo-opacus, capite thoraceque nitidioribus, antennis basi nigris, palpis tarsisque rufo-piceis; capite lævi postice angustato, genis elongatis parum prominentibus; thorace perparum cordato ante medium leviter rotundato-ampliato, deinde usque ad basin subrecte angustato, angulis posticis fere obtusis, margine postico alte reflexo, supra passim vage transversim strigoso; elytris convexis ovalis interdum postice dilatatis, ad humeros angustis, convexis, acute striatis, striis subtilissime punctulatis, interstitiis fere planis. Prosternum apice deflexum, rotundatum. Trochanteres postici obtusi. Tibiæ omnes rectæ. Tarsi supra sparsim setifero-punctati, subtus posteriorum articulo primo parce piloso, unguiculis basi denticulatis; tarsi antici ♂ articulis tribus dilatatis subtus squamulatis.*

Long. 16-18 millim. ♂ ♀.

Goorais Valley.

The thorax varies much in outline, in extreme cases it is rather strongly narrowed behind with the sides sinuated and hind angles slightly projecting and acute.

#### PRISTODACTYLA LACERANS.

*Quoad formam P. leni (Mannh.) similis. Elongatus, nigro-nitidus; antennis, palpis, tibiis et tarsis picescenti-rufis; capite (cum oculis) anguste ovato lævi; thorace subquadrato, antice usque ultra medium leviter rotundato-dilatato, prope basin mediocriter sinuato-angustato, angulis posticis rectis subacutis, intra angulum incrassato, ibique puncto setigero; foveis latis (interdum profundis) levibus; elytris fere parallelis, mediocriter convexis, apice vix perspicue sinuatis, basi utrinque valde arcuata, acute striatis, striis subtilissime haud profunde punctulatis, interstitiis parum convexis, tertio versus apicem unipunctato (interdum impunctato). Tarsi subtus longe pilosi, 4 posticis lateraliter sulcu-*

*latis, unguibus valde pectinatis; anteriores ♂ articulis 3 dilatatis late cordatis æqualibus. Prosternum immarginatum; episternum postica brevis. Mentum dente bifido.*

Long. 11 millim.

Goorais Valley.

ANCHOMENUS (AGONUM) MESOSTICTUS.

A. pusillo (*Schaum*) *simillimus et affinis, sed differt thorace postice paullulum rectius angustato angulisque distinctis obtusissimis foveaque latiore minus impressa rugulosa et sparse punctatu. Subæneo-niger, nitidus, antennis usque ad basin nigris, tarsis palporumque apice solum rufescentibus; elytris magis quadratis, fortius punctulato-striatis, interstitiis convexiusculis, tertio in medio grosse punctato. Antennæ articulis 1<sup>o</sup>-3<sup>m</sup> nudis. Tarsi omnes dorso canaliculati medioque carinati, articulo quarto latiusculo cordato.*

Long. 8 millim.

Goorais Valley.

COLPODES MELITTUS.

C ovalicipiti (*Bates*<sup>1</sup>) *proxime affinis et similis, sed differt elytris viridi-cæneo nitentibus nec chalybeis; antennis, palpis, tibiis tarsisque melleo-fluvis (interdum sordide fulvis). Caput anguste ovatum, oculis haud prominentibus colloque transverse depresso; thorace plerumque longiore et angustiore quam in C. ovalicipiti, cordato-ovato, ante medium (rursum prope medium) lutiore, deinde usque ad angulos posticos vulde obtusos subrecte angustato; elytris breviter oblongo-ovatis, apice haud perspicue sinuatis acute striatis, interdum punctulatis. Episterna postica paullulum elongata. Tarsi 4 posteriores dorso bisulcati, 2 anteriores sulculis obsoletis; articulo quarto in anticis profunde, in posticis parum emarginato, longe piloso.*

Long. 10 millim.

Goorais Valley.

COLPODES EULABES.

C. melitto *quoad formam et colorem similis, sed differt capite latiore, oculis prominentibus, tarsis lateraliter sulcatis, articulo quarto bilobato, elytris apice sat valde sinuatis. Niger, nitidus, elytris viridi-cæneo nitentibus; palpis, antennis, genibus, tibiis, tarsis et trochanteribus testaceo-rufis; capite pone oculos multo citius angustato, collo transversim depresso; thorace brevi, transverso, cordato, postice valde angustato, lateribus postice reflexis angulisque elevatis subrotundatis. Episterna postica sicut in C. melitto paullulum elongata.*

Long. 10-11 millim.

Goorais Valley.

<sup>1</sup> P. Z. S. 1878, p. 719.